

Streptococcal Sore Throat Followup Program in a Hospital Clinic, New York City

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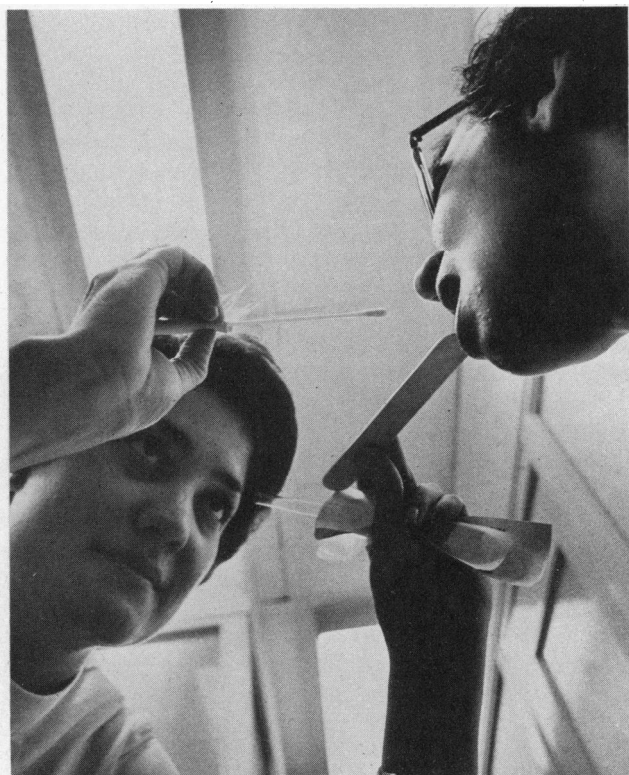
PATIENTS WHO REQUIRE antibiotic treatment and whose contacts must be screened for streptococcal pharyngitis are identified by accurate throat cultures. "The facts of the prevention of acute rheumatic fever are disarmingly simple. For a patient with an acute sore throat, we need to know simply, 'Is the culture positive for group A beta-hemolytic streptococcus?'" (1). Physicians have not yet applied this knowledge fully nor has appropriate funding been allocated for a serious attempt to deal with this infectious disease (2).

The highest rates for group A beta-hemolytic streptococcal pharyngitis ("strep" throat) and rheumatic fever occur in low income areas of large cities (3,4) where primary medical care is usually provided by hospital outpatient clinics and emergency rooms rather than by private physicians. Services in clinics and emergency rooms may be hurried and impersonal, and followup is often poor—preventive medicine is given low priority in such facilities.

Unless health care is covered by Medicaid, the high cost of routine clinic visits, laboratory tests, and treatment is a deterrent to effective rheumatic fever prevention measures. At St. Vincent's Hospital and Medical Center in New York City the charges of \$5–\$15 for an outpatient visit and the \$5–\$7 for a routine throat culture discourage clinic physicians from liberal throat culturing and patients and their contacts from returning for treatment or culture, especially if symptoms are mild or absent.

To determine the kind of care given to patients who have culture-proved strep throat, we reviewed the hospital clinic and emergency room records for such patients who were seen during the 3 months from December 1972 through February 1973. Throat cultures had been collected from 1,103 patients. Of the 116 or 11 percent who had strep throat, 70 or 60 percent were treated presumptively and adequately at the initial visit (5). Of the remaining 46 who did not receive initial treatment, only 9 or 20 percent returned for subsequent treatment. Although routine return appointments were made at the initial visit to the clinic, no effort was made to recall those patients who did not keep appointments. Moreover, no effort was made to obtain cultures from household contacts of patients with positive cultures.

Because the hospital serves a large inner city population, we devised a simple, inexpensive program to improve followup of patients with strep throat and to



Nurse collects specimen from patient's throat

screen their household contacts. The program was started in March 1973. We hope that this report of the program's success will encourage the development of similar programs in other primary care clinics.

St. Vincent's Program

Equipment costs. Initial expenditures included an office incubator, \$66; an alcohol lamp, \$5; and a wire loop, \$2. For each culture, we needed sheep blood agar (25

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cents per plate) and Bacitracin A disks (\$3 per 100)—these materials cost approximately 37 cents per culture. Injectable benzathine penicillin costs \$2 for 1.2 million units.

Secretary's duties. A medical secretary in the ambulatory care department (L.S.) performed the clerical and bacteriological work for the program. All laboratory reports concerning patients who attended the hospital's clinics and emergency room were reviewed each morning by a clinic physician. Reports of patients with positive strep throat cultures were submitted to the secretary who then obtained the charts of these patients from the medical records department and filled out data cards. Each card contained the patient's name, chart number, address, telephone number, age, date of culture, and indicated whether the patient had received adequate treatment for the strep throat during the initial visit.

A notification letter, in English and Spanish, was sent to each patient's home (one-third of our clinic population is Puerto Rican). The letter notified the patient of his or her positive throat culture and stated whether adequate treatment had been given. The possible consequences of untreated strep throat were explained, and stress was placed upon the fact that although the patient may have already received adequate treatment, household contacts were still at risk of being infected, even if they were asymptomatic.

The letter then requested that the untreated patient and all household contacts bring the notification letter any weekday to a specified clinic area where all would be seen promptly—the untreated patient would be treated and specimens for cultures would be collected from contacts. Contacts with positive cultures would be notified by mail. The letter also stated that if the patient or contacts were not covered by Medicaid, no charge would be made for services in this pilot project.

To reduce the routine hospital laboratory cost of screening contacts, the secretary was specially trained in the throat culturing technique recommended by the American Heart Association (6). She plated the contact's throat swabs on a blood agar media, applied a Bacitracin disk, and placed the culture plates in the office incubator. She read the plates the next day under the supervision of two physicians (A.K. and P.W.B). The accuracy of strep throat identification by this simple technique has been documented (7). Information on contacts and their culture results were also entered on the data cards.

Nurse's duties. When the untreated patient or his contacts came to the hospital with the notification letter, a specially trained nurse (D.M.) was notified.

Each patient who returned for treatment was questioned about allergy to penicillin. Those who were not allergic were given an intramuscular injection of benzathine penicillin. Patients weighing more than 100 pounds were given 1.2 million units; those weighing less than 100 pounds were given 600,000 units. Oral

penicillin for 10 days was an acceptable alternative. Erythromycin, 250 mg four times a day for 10 days, was substituted for those allergic to penicillin. The nurse administered treatment according to a standing order protocol, which eliminated the need for physician intervention.

The nurse collected throat cultures from the contacts with cotton-tipped swabs and transported them in Culturette media to the medical secretary. The services provided by the nurse were entered on the patient's chart and on the secretary's data card.

To determine the program's effectiveness, we compared subsequent treatment and screening of contacts for 114 patients with positive cultures seen during the 3 months before the program, from December 1972 through February 1973, with that for 214 patients seen during the first 6 months of the program, March through August 1973.

Results

During the first 6 months of the program, 60 percent of the patients with strep throat and more than half the contacts screened for strep throat were under 18 years old (table 1). Relatively few adolescents were seen in the hospital for sore throats or as household contacts.

Table 1. Age distribution of patients with strep throat and their contacts who attended the clinic

Age (years)	Patients		Contacts	
	Number	Percent	Number	Percent
Under 2	10	5	17	7
2-5	46	22	33	14
6-12	60	28	62	26
13-17	12	6	17	7
18-25	34	16	29	12
25 and over	52	24	81	34
Total	214	101	239	100

¹Totals do not add to 100 because of rounding.

The number of throat cultures obtained and the rate of positive cultures were compared for the periods before and after introduction of the strep program (table 2). The rate of initially untreated strep throat patients who returned for treatment appeared to double when notification letters were sent—from 21 to 46 percent.

Throat cultures were obtained for 239 household contacts. If the average household in our study population contained four to five people, approximately 20-25 percent of all household contacts were screened. The rate of strep throat among household contacts (14 percent) in our sample was slightly higher than that among patients who come to our clinics with sore throats (10 percent), but the difference is not significant. The rate of followup treatment of positive household contacts was 77 percent.



Secretary plates throat swabs

The secretary devoted approximately 15 minutes of her time each day to the strep program. The nurse devoted about 10 minutes with each patient. No physician's time was required during this program other than occasional assistance in reading equivocal strep throat culture plates.

Of the 65 patients treated with antibiotics, 20 were covered by Medicaid, and of the 239 contacts screened for strep throat, 136 were covered by Medicaid. Thus, while the strep program offered a free service to approximately half the consumers, receipts from those covered by Medicaid more than paid the cost of the equipment, antibiotics, and staff time of the entire program.

Discussion

The effectiveness of our program can be attributed in large part to the notification letter which also offered free screening and treatment where indicated. The number of return visits of untreated patients with positive cultures increased substantially and many household contacts came to the clinic as a result of the letter.

While all patients were given followup appointments before the program, only 20 percent returned to the clinic. Such low return rates are understandable. In the absence of treatment, most pharyngitis, including streptococcal sore throat, becomes asymptomatic within days. Thus, most patients believe they are cured and do not keep followup appointments. None of the

patients were adequately informed about the dangers of asymptomatic infection before the program.

The validity of testing household contacts seems justified by our data which show that the likelihood of finding strep throat in a contact is similar to, if not greater than, finding strep throat in a patient with a sore throat.

Although 40 percent of the positive throat cultures were for adults, less than one-third of the cultures of outpatients were collected from adults. We attribute this difference to more liberal throat culturing of mildly symptomatic children. More severe signs and symptoms were usually evident in adults before their physicians ordered a throat culture. The likelihood of a sore throat being a streptococcal infection increases as symptoms and signs increase (8).

Usually, programs for primary detection of streptococcal sore throat are for children, because they are more susceptible to acute rheumatic fever than adults. While adults are also susceptible to rheumatic fever, a more important reason for detecting their infections may be their role as a source of spread in the household (9).

The scarcity of adolescents in our series likely reflects their general lack of participation in the organized health care system rather than a peculiar adolescent resistance to streptococcal infections (10).

While rheumatic fever and rheumatic heart disease remain significant health problems in the United States (2), enthusiasm for their prevention has waned faster than its decline in incidence. As such, funds for rheumatic fever prevention programs are scarce. This is unfortunate, for rheumatic heart disease is the one form of heart disease which strikes the young and is completely preventable. Thus, there is a need for better prevention measures. To accomplish such measures today, simplicity and economy are most important.

In our program, we have been able to function in a hospital setting without substantial physician service. We accomplished this by extending the skills of a medical secretary and promoting a more independent nurse's role, with the assistance of standing orders for an accepted protocol-treatment of streptococcal sore throat.

The cost of the program was modest and was more than compensated for by reimbursement through Medicaid. We feel that the effort of the health provider

Table 2. Effect of streptococcal sore throat followup program on subsequent treatment and contact screening for patients with positive cultures

Period	Initial throat cultures			Treated initially		Treated on followup	
	Number cultured	Number positive	Percent	Number	Percent	Number	Percent
3 months before program	1,123	114	10	72	63	9	21
6 months during program	2,206	214	10	141	60	41	46
Household contacts, 6 months	239	33	14	-----	-----	24	77

required to institute such a program is justified for two reasons. First, adequate diagnosis and treatment of strep throat is the key to rheumatic fever prevention. Second, responsibility for the control of a communicable disease such as strep throat cannot lie solely with the patient but must also be the responsibility of health institutions.

It may be impractical for city health departments to undertake this task. Their funding is often inadequate, and they are not centers of general primary care. Thus, the more practical solution is for such prevention to emanate from existing health care facilities such as hospital clinics.

The creation of new job categories and elaborate programs to meet this preventive health need may be economically unfeasible and thus not acceptable to budget-minded administrators. However, we have demonstrated that health personnel already employed in the institution can provide a sizable preventive service in a minimum amount of time without the aid of physicians.

The success of our program suggests other cost-cutting measures in the total management of the clinic patient with a sore throat. Generally, a throat culture is performed only to determine if a patient has a streptococcal infection (2). Culturing the throat solely for the presence of group A beta-hemolytic streptococci is less costly than culturing for all pathological organisms. One could thus economize without diminishing the quality of care by screening patients with sore throats for strep throat alone.

If all throat cultures were performed by the clinic staff using the techniques and equipment we described, rather than sending the cultures routinely to the hospital or clinic laboratory, the cost of service would again be sharply reduced.

Finally, the efficacy and economy of protocol management of clinic patients with common illnesses by nurses rather than physicians has recently been demonstrated (11). One might expect a similar success if all phases of the workup and management of patients with sore throats were handled by nurses and non-professional staff.

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SYNOPSIS

KAUFMAN, ARTHUR (St. Vincent's Hospital and Medical Center), MURRAY, DOROTHY STARITA, LAURA, and BRICKNER, PHILIP W.: *Streptococcal sore throat followup program in a hospital clinic, New York City. Public Health Reports, Vol. 90, July-August, 1975, pp. 369-372.*

To improve followup and treatment of patients with streptococcal sore throat at St. Vincent's Hospital and Medical Center, New York City, a simple and inexpensive method was devised for recalling and treating untreated patients with positive throat cultures and culturing household contacts. The

program was conducted by a clinic nurse and a secretary, with only occasional assistance from a physician. All services were free for those without Medicaid coverage.

The secretary sent notification letters to all patients with positive cultures urging them to return for treatment and emphasizing the need for their contacts to come for screening. The secretary, trained in the throat culturing technique, also performed the laboratory work on the cultures from contacts. The clinic nurse swabbed the throats of all contacts and administered treatment, according to a standing-order protocol, to

all with culture-proved streptococcal sore throat.

A comparison of initially untreated patients with positive cultures seen 3 months before and 6 months after the program was started revealed that 46 percent returned for treatment after the notification letter was sent; before the program only 21 percent returned for treatment. No attempt had been made to reach household contacts before the program began. The rate of streptococcal sore throat in contacts was 14 percent, and in the clinic patients it was 11 percent during the first 6 months of the program.